

Patent Claims

What is claimed:

1. A method for patching up circuit patterns of thin-film transistor
5 (TFT) circuits on a display panel, comprising:

placing a mask having an opening above the display panel,
wherein the opening corresponds to the location of cracks of the circuits on
the display panel; and

performing a plasma sputtering procedure to deposit a metal thin
10 film through the opening of the mask on the display panel so as to connect the
broken circuits.

2. The method of Claim 1, wherein a plurality of the TFT circuits
on the display panel are exposed and the metal thin film is deposited through the
15 opening of the mask.

3. The method of Claim 2, further comprising a laser cut-out
procedure after the metal thin film is deposited to cut apart the metal thin film on
the plurality of the TFT circuits so as to prevent the different TFT circuits from
20 short circuits.

4. The method of Claim 1, wherein the TFT circuits are formed by
depositing a first metal layer and a second metal layer in turn, and the first metal
layer and the second metal layer are respectively made of a material selected

from the group consisting of chromium, tungsten, tantalum, titanium, molybdenum, platinum, aluminum or any combinations thereof.

5 5. The method of Claim 4, wherein the metal thin film is made of aluminum and is deposited to fill breaches of the first metal layer and the second metal layer.

6. A method for patching up circuit patterns of thin-film transistor (TFT) circuits on a display panel, comprising:
10 locally depositing a metal thin film on the surface of the display panel to completely cover a crack region of a plurality of the circuits on the display panel; and
performing a laser cut-out procedure to cut apart the metal thin film locally deposited on the plurality of the circuits so as to prevent the different
15 circuits from short circuits.

7. The method of Claim 6, wherein each of the circuits is made of a material selected from the group consisting of chromium, tungsten, tantalum, titanium, molybdenum, platinum, aluminum or any combinations thereof.

20 8. The method of Claim 6, wherein the metal thin film is made of aluminum.

9. The method of Claim 6, wherein each of the circuits is formed by depositing a first metal layer and a second metal layer in turn, and the first metal layer and the second metal layer are respectively made of a material selected from the group consisting of chromium, tungsten, tantalum, titanium, molybdenum, platinum, aluminum or any combinations thereof.

10. The method of Claim 9, wherein the metal thin film is made of aluminum and is deposited to fill breaches of the first metal layer and the second metal layer.

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11. A method for patching up circuit patterns of thin-film transistor (TFT) circuits on a display panel, comprising:

producing gaseous metal compounds above the display panel;
and

15 transmitting energy to above the location of cracks of the TFT circuits to ionize the gaseous metal compounds into metal particles such that the metal particles can be deposited along the direction of the TFT circuits to cover and connect the cracks of the TFT circuits.

20 12. The method of Claim 11, wherein the gaseous metal compounds are $W(CO)_6$.

13. The method of Claim 11, wherein the metal particles are aluminum.

14. The method of Claim 11, wherein the step of transmitting energy is performed by laser beam irradiation.

15. The method of Claim 11, wherein the step of transmitting
5 energy is performed by focus ion beam irradiation.

16. The method of Claim 11, wherein each of the TFT circuits is made of a material selected from the group consisting of chromium, tungsten, tantalum, titanium, molybdenum, platinum, aluminum or any combinations
10 thereof.

17. The method of Claim 11, wherein each of the TFT circuits is formed by depositing a first metal layer and a second metal layer in turn, and the first metal layer and the second metal layer are respectively made of a material
15 selected from the group consisting of chromium, tungsten, tantalum, titanium, molybdenum, platinum, aluminum or any combinations thereof.

18. The method of Claim 17, wherein the metal particles are deposited to fill breaches of the first metal layer and the second metal layer.